ANALYSIS OF RADIO GEOGRAPHIC MARKET DEFINITIONS FOR STATIONS IN UNRATED AREAS

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Executive Summary

The Commission is investigating alternatives for defining geographic markets for radio stations in areas of the country outside of the "metro" markets defined by Arbitron. The Commission has suggested two alternatives -- OMB statistical areas and Cellular Market Areas (CMAs) -- and has inquired about other potential criteria for determining relevant geographic markets for these non-metro areas.

The purpose of this paper is to review the Commission's two alternatives, and present and analyze two other possible methods for determining the appropriate geographic market in areas not located within Arbitron metro markets. One other method examined here is to identify a "center of commerce" for every county not included in a metro, and assign radio stations to the markets formed around each of these centers. The second alternative is to use the more limited ratings information collected by Arbitron in non-metro areas to determine the stations that compete against each other in those areas.

Unfortunately, neither the Commission's two proposals, or the two additional alternatives analyzed, adequately define markets in non-metro areas. Some of the most significant problems found utilizing the two Commission alternatives as well as the two analyzed here include:

- All of these alternative market definitions frequently fail to include all of the radio stations that actually compete in an area.
- Utilizing any of these market definitions would frequently understate the number of competitive radio stations, while also overstating the dominance of existing radio station owners.
- Utilizing CMAs, in particular, sometimes would assign to the same market stations that do not compete against each other, due to the size of a number of these CMAs.
- These alternative market definitions suffer from various other drawbacks, including incompleteness, complexities arising from their overlap with Arbitron metro markets, and even difficulty of application.

As a result, it would be best for the Commission to continue using its contour methodology for defining radio geographic markets and identifying the participating radio stations in those markets.

ANALYSIS OF RADIO GEOGRAPHIC MARKET DEFINITIONS FOR STATIONS IN UNRATED AREAS

Introduction

In its recent decision on local broadcast ownership issues, the Federal Communication Commission instituted a new geographic market definition for analyzing proposed radio station combinations located in areas where the Arbitron Ratings Co. quarterly or semiannually surveys local radio station listening.¹ Since many radio stations are in areas where Arbitron does not survey local radio listening every quarter or semiannually,² the Commission is investigating alternative geographic market definitions for any proposed combinations of local radio stations in these "unrated" areas. The Commission has suggested two alternatives and has inquired about other potential criteria for determining relevant geographic markets for these non-surveyed areas. One alternative the Commission has suggested is the Office of Management and Budget (OMB) defined Metropolitan and Micropolitan Statistical Areas, which are established to represent relevant economic areas. The other offered alternative is to use the Cellular Market Areas (CMAs) established by the Commission for granting cellular telephone licenses.

The purpose of this paper is to review the Commission's two proposals, and present and analyze two other possible methods for determining the appropriate geographic market in areas

See paras. 235-326, In the Matter of Definition of Radio Markets, MM Docket 00-244, FCC 03-127 (rel. July 2, 2003).

According to the BIA Financial Network database, there are 5,936 radio stations (43.1% of all radio stations) physically located in the 2,240 counties where Arbitron does not conduct quarterly or semiannual surveys.

not located within Arbitron "metro" markets. One possible alternative involved identifying the most populous city or town in each county as a "center of commerce," and then assigning radio stations to these markets around each population center, based on specified maximum distance standards. The final alternative attempted to use the more limited ratings information collected by Arbitron in non-metro areas to determine the stations that compete against each other in these areas.

Unfortunately, neither the Commission's two proposals, or the two additional alternatives analyzed, adequately define markets in non-metro areas. All of these alternative market definitions frequently fail to include all of the relevant competitors. Utilizing any of these market definitions would frequently understate the number of competitive radio stations, while also overstating the dominance of existing radio station owners. Utilizing CMAs, in particular, sometimes would assign to the same market stations that do not compete against each other, due to the size of a number of these CMAs. Additionally, these alternative market definitions suffer from various other drawbacks, including incompleteness, complexities arising from their overlap with Arbitron metro markets, and even difficulty of application. We will discuss each of these alternatives in the remainder of this report.

OMB Metropolitan and Micropolitan Statistical Areas

The Commission first suggested utilizing the Metropolitan and Micropolitan Statistical Areas, as defined by OMB. The Micropolitan Statistical Areas are relatively new areas designated by OMB and represent economic areas with smaller populations than the Metropolitan Statistical Areas. All of these areas are established by OMB to represent "areas of

economic and social interaction," and the Commission therefore suggests they may possibly be appropriate boundaries for radio markets.

There are 935 different metropolitan or micropolitan areas designated by OMB throughout the country.⁴ On average, there are 1.9 counties in these OMB areas with an average area of 1,752 square miles. However, these OMB areas vary widely with one OMB area (Atlanta-Sandy Springs-Marietta, GA Metropolitan Statistical Area) comprising 28 counties, and another OMB area (Riverside-San Bernardino-Ontario, CA Metropolitan Statistical Area) encompassing 27,270 square miles.

More significantly for determining the appropriateness of OMB areas as radio markets is that only 1,838 of the counties in the U.S are assigned to any OMB area. There are 1,378 counties (42.8%) that are not assigned to any OMB designated area. There are a substantial number of radio stations – 2,504 or 18.7% of all U.S. radio stations – that are located in counties that are not part of any OMB designated area. Consequently, even if the Commission were to adopt these areas for defining the relevant radio geographic markets, there would still be thousands of radio stations not included in any geographic market.

In addition to this substantial number of counties and radio stations that are not part of any OMB area, another factor greatly complicates using OMB areas as surrogates for radio markets in non-metro areas. Many OMB areas include both counties that are part of existing

Notice of Proposed Rulemaking in MB Docket No. 03-130, FCC 03-127 (rel. July 2, 2003), para. 659, p. 252.

Thirteen of these OMB areas are located in Puerto Rico, and due to lack of county-based information about those areas, the summary results in this report will only include the 922 OMB areas located in the continental U.S., Alaska and Hawaii.

Arbitron metros and counties that are not part of any Arbitron metro. There are 112 "mixed" OMB areas⁵ with an average of 5.4 counties - 3.6 of which are Arbitron metro counties and 1.8 are non-metro counties. In terms of total area, the non-Arbitron metro counties constitute 39.7% of the square miles in the counties comprising the "mixed" OMB areas. Overall, there are 408 radio stations licensed to cities in the non-Arbitron metro counties of these "mixed" OMB areas.

These "mixed" OMB areas often surround Arbitron metros, with some of the non-metro counties located a considerable distance away from each other. For example, Figure 1 shows the Denver-Aurora OMB Metropolitan Statistical Area. The Denver Arbitron metro, consisting of seven of these counties is shown as crosshatched counties (Adams, Arapahoe, Broomfield, Boulder, Denver, Douglas, and Jefferson). There are four additional counties shown with the diagonal lines that are *not* part of the Denver Arbitron metro (Clear Creek, Elbert, Gilpin, and Park), yet are part of the Denver OMB area. As evident from Figure 1, some of these non-metro counties are non-contiguous and separated by considerable distances.

⁵ Appendix 1 lists the mixed OMB areas.

Boulder County, while part of the Denver Arbitron metro area, is not part of the Denver-Aurora OMB area. It comprises the one county Boulder OMB area.

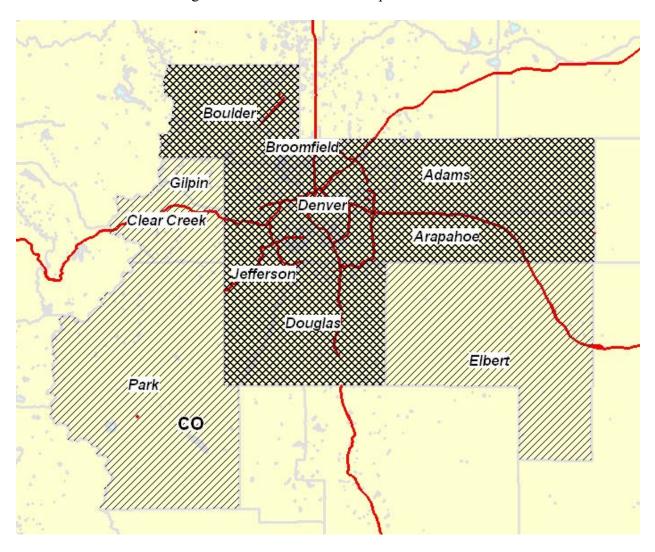


Figure 1 – Denver OMB Metropolitan Statistical Area

Another example of a bifurcated OMB area occurs with the St. Louis OMB Metropolitan Statistical Area. As shown in Figure 2, there are twelve counties (cross-hatched in the figure) that constitute the Arbitron metro market. There are five additional, non-contiguous counties (shown with the diagonal lines in the figure), which when added to the other twelve, comprise the St. Louis OMB Metropolitan Statistical Area.

This existence of mixed OMB areas complicates using these geographic markets for evaluating proposed radio acquisitions. Within these mixed OMB areas, it is unclear which counties should be treated as being in the market. For example, if the relevant market in each mixed area is deemed to consist of only the non-metro counties within the larger OMB area, the result will often be markets comprised of geographically distant (and even non-contiguous) counties with little relation to each other. Stations in these non-metro counties will then be counted as being in the same market, even though they are possibly located hundreds of miles away from each other. This point is clearly seen in Figure 2, as the city grade contours of the thirteen stations licensed to the five OMB area counties that are not part of the St. Louis Arbitron metro are shown. The city-grade coverage areas of each of these thirteen stations intersect with the coverage areas of their home county stations, as well as the coverage areas of stations located in adjacent counties. However, the city-grade coverage areas of all these thirteen stations do not come close to interesting with each other, due to the distance between them, even though they are all located in the St. Louis OMB Metropolitan Statistical Area.

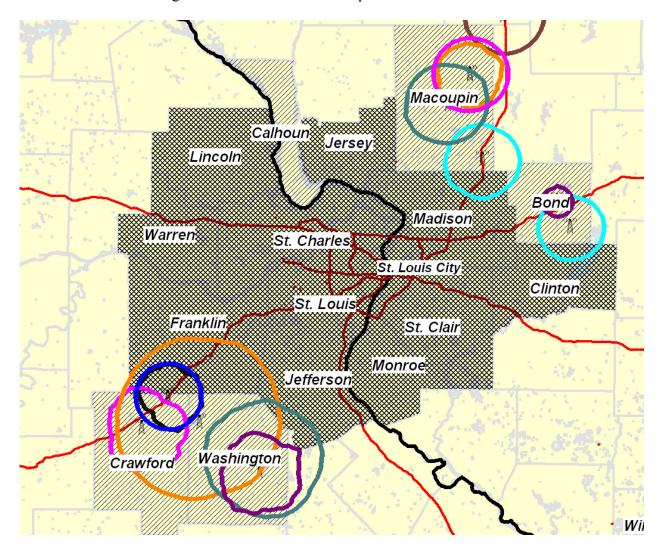


Figure 2 St. Louis OMB Metropolitan Statistical Area

Still another problem with using the OMB statistical areas is that they understate the number of radio stations serving particular areas. Stations licensed to adjoining counties are overlooked when counting the number of stations that are part of a "market." Clearly, many of these adjacent county stations are also serving the public in the neighboring OMB area. Given this understatement of the number of stations serving many areas, there are nearly ninety situations where existing radio station groups exceed the local ownership caps, when using the OMB areas as the relevant geographic markets.

Many of these instances involve the smaller OMB areas where only one or two counties comprise the OMB area.⁷ One such example is the West Plains, MO OMB Micropolitan Statistical Area. Only seven stations are licensed in that one county (Howell) with one radio company owning four (two AM and two FM stations) of those seven stations, which exceeds the ownership cap for markets with less than fifteen stations. However, more stations actually serve the West Plains, MO area.

To see the other stations that may be serving that particular area, we evaluated the contours of all stations within fifty miles of the city of license for one of the West Plains, MO stations (KUKU-FM). The contours of six additional stations intersected a significant part of the West Plains, MO OMB area. Figure 3 shows the contours of KUKU-FM (represented by the dark black line), the contours of those six additional stations, and the West Plains, MO OMB

There are actually 613 OMB areas that consist of only one county, and 149 that consist of only two counties.

Those six stations are KAMS-FM, KBMV-AM, KBMV-FM, KHOM-FM, KOMT-FM, and KUNQ-FM.

area that is represented by the crosshatched area. For ease of display, we did not include the contours of the other seven stations whose cities of license are in Howell County.

Clearly, these six additional stations serve the one-county West Plains, MO OMB area and should be included in any evaluation of the local radio marketplace in that area. If those six stations serving the West Plains, MO area were counted, as well as the seven stations licensed to Howell County, the total number of stations in that market would be thirteen. Therefore, the group owner with four stations licensed to West Plains, MO would be in compliance with the local radio ownership caps when all of the relevant stations are counted.

This failure to include all of the relevant radio stations occurs in many OMB areas due to the hundreds that consist of only one or two counties. Another example is the Henderson, NC Micropolitan Statistical Area. That area, which consists of only one county (Vance), has only three stations licensed to that county. However, after examining the city-grade contours of stations located in neighboring counties, it is clear many more stations serve that area. Specifically, there are eight stations whose city-grade contours intersect part or all of that OMB area. Figure 4 shows the city-grade contours of those eight stations located outside the Henderson, NC OMB area, which is represented by the crosshatched area. For ease of display, we did not include the contours of the other three stations whose cities of license are in Vance County.

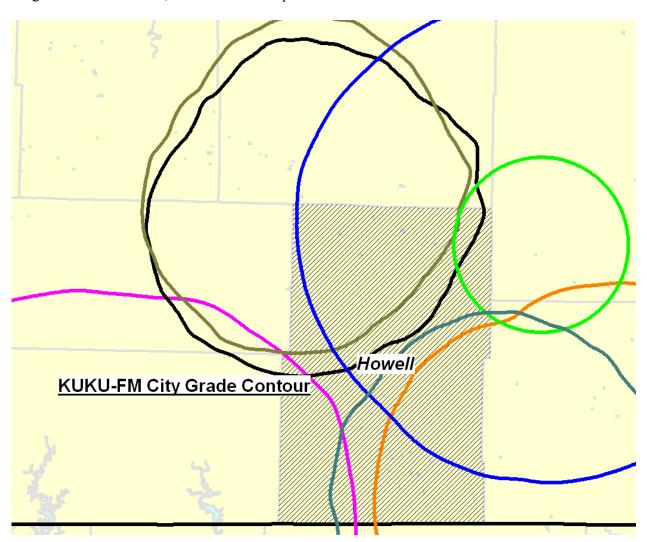
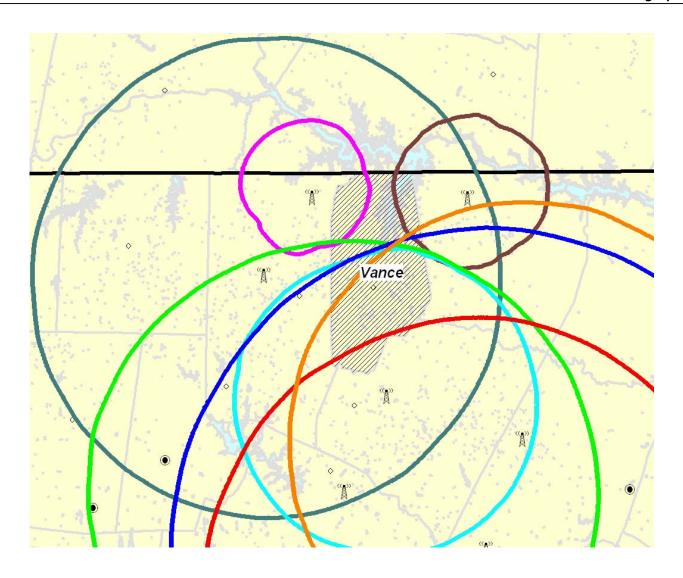


Figure 3 – West Plains, MO OMB Micropolitan Statistical Area and Stations Outside that Area

Figure 4 – Henderson, NC OMB Micropolitan Statistical Area



Cellular Market Areas

Another geographic market definition proposed by the Commission is Cellular Market Areas (CMAs). The Commission previously developed these areas for the licensing of cellular service. While some of these CMAs corresponded to OMB Metropolitan Statistical Areas at the time they were established, many cover more rural areas and were defined by the Commission.

Unlike the OMB defined areas, CMAs cover the entire U.S.9 Since they include all of the counties, they tend to be larger than the OMB areas. On average, CMAs comprise 4.4 counties covering a total of 4,915 square miles. Once again there is wide variation, with one CMA (New York, NY-NJ) having 17 counties, and another CMA (Alaska-1) encompassing over 340 thousand square miles.¹⁰

Given their larger sizes, CMAs include stations that are located very far from one another. It is highly unlikely that all radio stations within the geographic boundaries of a very large CMA actually compete with all of the other stations in that CMA. Figure 5 shows the Oregon – 6 CMA with the city-grade contours of the radio stations licensed to that CMA's five counties.

There are 716 CMAs covering all counties in the continental U.S., Alaska and Hawaii. There are an additional five CMAs for Puerto Rico.

The largest area for CMAs in the forty-eight lower states is Wyoming-3, which encompasses nearly 43 thousand square miles. In total, there are 17 CMAs that are larger than 20 thousand square miles in area

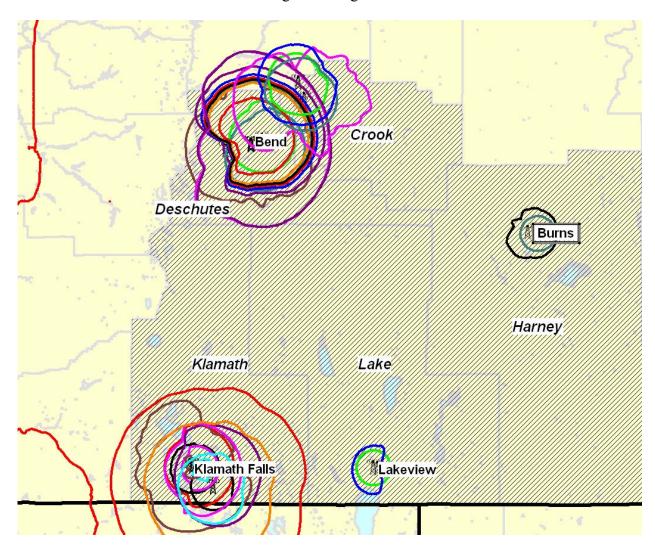


Figure 5 Oregon – 6 CMA

The radio stations licensed to those five counties are situated in four separate areas, surrounding the cities/towns of Bend, Burns, Lakeview, and Klamath Falls, OR. Around those four cities/towns, stations compete against other local stations, but the stations clustered around one of those four population centers could not compete with stations around another distantly located population center within the Oregon-6 CMA. In fact, there are seventeen pairs of stations in this CMA that are located more than one hundred miles from each other.

Like with the OMB areas, some CMAs contain only Arbitron metro counties (250 CMAs), some have only non-metro counties (317 CMAs), and some mixed areas include both types of counties (148 CMAs). There are actually a greater number of "mixed" CMAs than "mixed" OMB areas.¹¹

These mixed CMAs create the same types of problems as were identified for the mixed OMB areas – specifically, counting stations in non-metro counties that obviously do not compete against one another. Figure 6 shows the Louisiana – 5 CMA. That CMA has four parishes (Acadia, St. Landry, Vermilion and Pointe Coupee) that are part of an Arbitron metro¹² (represented by the cross-hatched area), and six parishes that are outside of any metro (represented by the diagonal area). Also shown are the city-grade contours of a number of stations whose cities of license are in parishes that are *not* part of any Arbitron metro but are part of the Louisiana – 5 CMA. For ease of exposition, the contours of the stations located within the Arbitron metro parishes in this area are not shown.

¹¹ Appendix 2 lists the mixed CMAs.

Three of these parishes are in the Lafayette Arbitron Metro, while Pointe Coupee is in the Baton Rouge Metro.

Clearly this CMA is not one radio market. The city-grade contours of stations in the western parishes do not come close to overlapping those of the stations in the northern or more eastern parishes. Thirteen pairs of stations licensed to this CMA are over 100 miles away from each other. As a result of this vast distance between these stations, listeners in the different areas cannot receive all of these stations. Advertisers situated in either the western, northern or eastern parishes may not be interested in reaching listeners in these other areas. Instead, it seems likely that stations in the non-metro parishes compete for listeners and advertisers with stations located in the adjacent metro parishes (or even with stations located in neighboring parishes outside the CMA entirely).

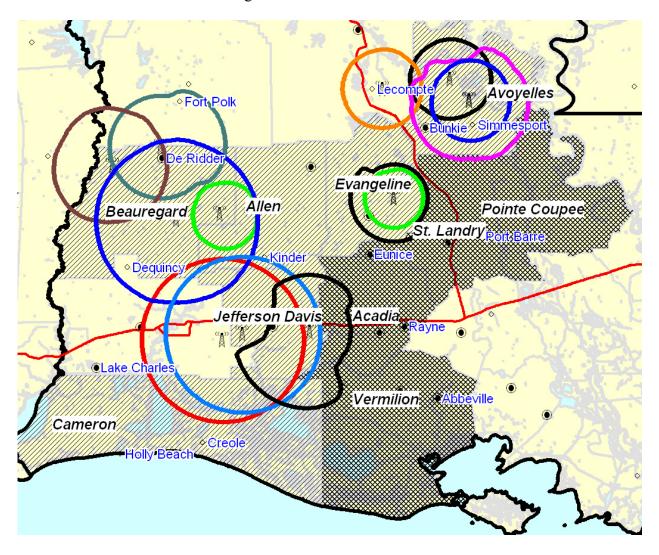


Figure 6 – Louisiana – 5 CMA

CMAs may also fail to reflect actual radio service because many of these defined areas stop at state borders. The CMAs, defined by the FCC in the 1980s to "fill out" the parts of the country not covered by Metropolitan Statistical Areas at that time, are all state based. In contrast, the CMAs corresponding to the 1980 Metropolitan Statistical Areas can, and in many cases do, cross state boundaries. Therefore, the ability of CMAs to accurately reflect radio service will vary substantially within the set of CMAs, given their different treatment of state boundaries.

Moreover, CMAs that are restricted by state and county boundaries will, in many cases, understate the number of stations that actually compete in a particular CMA.¹³ An example of the impact of state boundaries is shown in Figure 7, that shows the Massachussetts-1 CMA and the city-grade contours of three stations located outside the state that clearly cover a substantial part of that CMA.¹⁴ In counting the stations that compete in the one-county Massachussetts-1 CMA, those three stations should be included along with nine stations whose cities of license are located in that CMA (as well as other Massachusetts-based stations in neighboring counties whose city-grade contours also cover a noticeable portion of the Massachussetts-1 CMA).¹⁵

All CMAs (like all OMB areas) are restricted by county boundaries.

Those three stations are WYRY-FM from New Hampshire, and WTSA-FM and WVAY-FM from Vermont.

There are ten additional stations in neighboring Massachusetts counties whose city-grade contours cover a noticeable portion of the Massachusetts – 1 CMA.

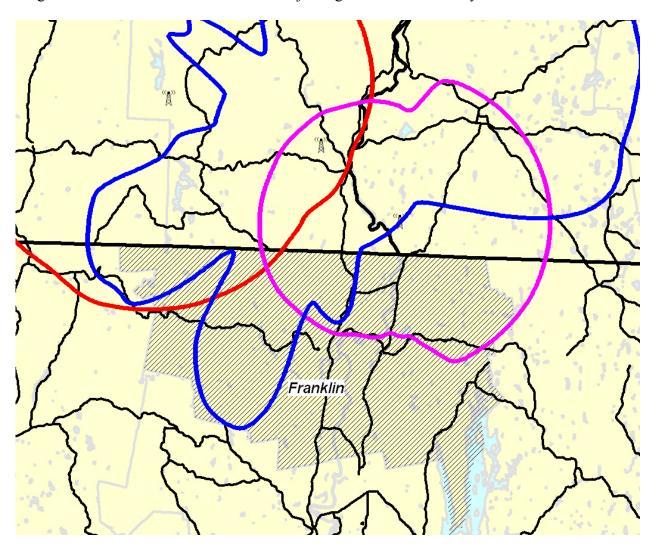


Figure 7 – Massachusetts –1 CMA and Adjoining State's Stations City Grade Contours

To see the potential impact that county boundaries alone can have on understating the number of competitive radio stations, we examined the Missouri–16 CMA. There are fourteen radio stations licensed to the four counties in that CMA. One radio group owns four FM stations, and if that CMA is the determining geographic market, that group would be in violation of the local radio ownership rules. However, many stations located nearby are not counted because their city of license is outside the CMA. The extent of that undercounting is clearly seen when the city-grade contours of stations within forty miles of KELE-AM (a station located within that CMA) are studied. Of those stations, we found that the city-grade contours of five stations an noticeable portion of the Missouri-16 CMA and/or KELE-AM's city-grade contour. Figure 8 shows KELE-AM's city-grade contour (black circle) along with the city-grade contours of the other five stations. Also noted by the diagonal lines are the four counties comprising the Missouri-16 CMA. Once those additional five stations are included as serving the Missouri-16 CMA, the number of stations in the market exceeds fifteen stations. In that case, the radio group with four FM stations would no longer exceed the ownership caps.

Those stations and their distances from KELE-AM are KSPQ-AM (20.89 miles), KTXR-FM (37.94 miles), KUKU-AM (17.83 miles), KUKU-FM (13.20 miles), and KUPH-FM (26.97 miles).

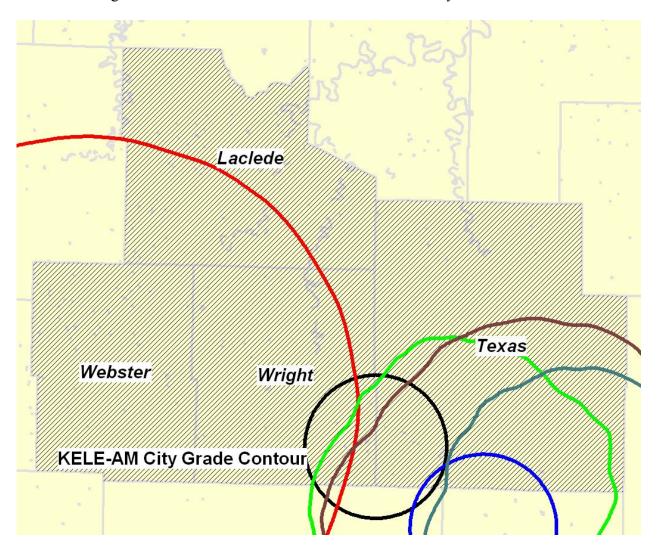


Figure 8 – Missouri-16 CMA and Outside Stations City Grade Contours

Finally, due to the underlying reason CMAs were constructed – to develop geographic markets for cellular services – there are many CMAs that include radio stations that are clearly not competitive with each other. As a result, several cases exist where a radio group owner exceeds the local ownership cap even though the commonly-owned stations do not provide service to the same areas. Figure 9 shows such an example in the Kentucky – 4 CMA. That CMA is constructed so as to incorporate the state highways (noted by the green lines on the map) into a single market.

One broadcast company owns twelve stations that are physically located within the Kentucky – 4 CMA. For ease of exposition, Figure 9 includes the city-grade contours of only the stations owned by that group. Those twelve stations are actually serving, however, three separate markets within the CMA – 1) Hardin and Larue Counties; 2) Washington, Nelson, and Marion Counties; and 3) Green and Taylor Counties. In fact, the city-grade contours of the stations in any one of the three areas do not overlap the city-grade contours of stations serving the other two areas. Therefore, it would be inappropriate to conclude that those stations are serving the same market and that all are competing with each other.

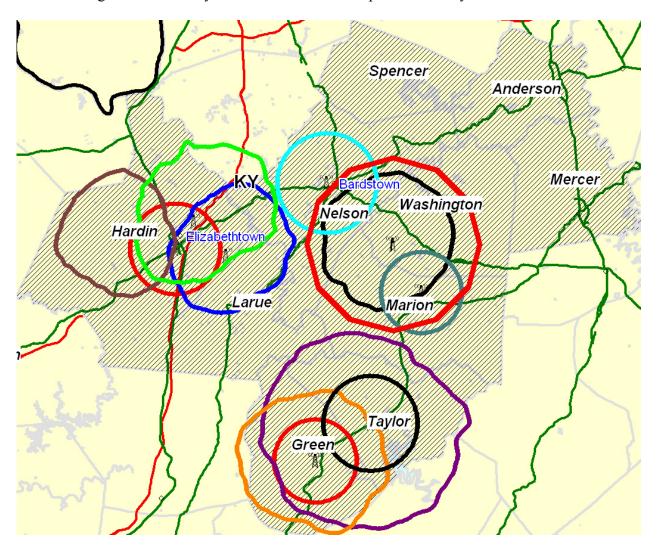


Figure 9– Kentucky - 4 CMA and One Group Owner's City Grade Contours

Center of Commerce Areas (COCAs)

Because the two geographic market definitions suggested by the FCC do not appear to accurately delineate radio markets, we examined the possibility of developing a different geographic market definition. We envisioned these geographic market areas as reflecting the way that radio stations operate and sell advertising time.¹⁷ Specifically, in all counties that Arbitron does not survey quarterly or semiannually, we tried to identify the center of commerce in order to determine where the radio stations in those areas would focus their advertising sales efforts.

Once we determined that center, we could attempt to identify which stations compete for advertisers located in that center of commerce.

The first step in this process involved identifying the most populous city or town in each of the 2,222 counties that Arbitron does not survey on a regular basis. The location of this city or town would be our "center of commerce," and we assumed that radio stations located in that county or adjoining counties would focus their sales efforts on businesses in that city or town.

Distances between that center of commerce and radio stations located nearby were calculated. 19

To insure that only those stations capable of serving each center of commerce were counted, only those stations within certain maximum distances of each center were assigned as serving the COCA. To establish these maximum distances for FM stations, we utilized mileages

This advertising sales approach would be the most similar approach to the geographic market definition used for stations located within Arbitron surveyed areas.

For eighteen counties not regularly surveyed by Arbitron we could not determine the most populous city or town. Other data sources would need to be used for these counties.

To insure that relevant stations would not be missed, distances to the center of commerce were calculated for all stations in the same state and adjoining states.

for each class of FM stations corresponding to the Commission rules for maximum coverage patterns with respect to the power and antenna heights associated with that class.²⁰ Unfortunately for AM stations there is no corresponding benchmark, as AM service areas are much more varied in size and shape. After examining several AM contours, we assumed a thirty mile maximum distance for including relevant AM stations for every COCA. Table 1 shows the maximum distances used in assigning stations as serving the COCA.

Table 1

Maximum Distances for Station Type and Class in Assigning Stations to COCAs

Type of Service	Station Class	Maximum Mileage
FM	С	57
FM	C1	45
FM	B/C2	32
FM	B1/C3	24
FM	A	17
AM	All	30

Stations that were physically located within a county but were farther than the maximum distance to the center of commerce location in the county were also added to the list of stations

See 47 C.F.R. Sec. 73.211(b).

for that COCA. This adjustment was made to insure that all radio stations in the U.S. located in non-metro areas would be assigned to at least one COCA.²¹

In essence, the COCA market definition is a *de facto* county-by-county approach to defining markets for non-metro counties. The COCA definition does account for all stations that are competitive in a particular county (i.e., within a maximum distance from the center of commerce) even though some may not be physically located within the same county.²² While this approach will be comprehensive in analyzing potential combinations of any stations in non-metro areas, it is limiting by its definition of each market as including only one county. Many situations exist where two or more neighboring counties are tied together economically and should be considered as one radio market. We could not find, however, any criteria enabling us to combine counties into markets that consistently and accurately reflect radio service.

This understating of the "true" physical boundaries of a center of commerce area will have the effect of understating the total number of radio stations that serve many of these areas. As a result, utilizing COCAs will cause a considerable number of existing radio clusters to exceed the local ownership caps. To be considered as accurate, a center of commerce approach, in a number of areas, would have to combine more than one county into markets, thereby

The Commission similarly determined to count as being in an Arbitron metro all stations physically located within the counties in that metro, even if some of those stations failed to receive the minimum listening levels required to be listed by Arbitron (possibly due to their distance away from the most populated areas in that metro). See para. 280, In the Matter of Definition of Radio Markets.

This assignment of stations physically located outside the county to a particular COCA is analogous to the many situations in Arbitron markets where a station chooses to be listed as home to a market even though its physical location is outside of that Arbitron metro.

increasing the number of stations considered as being in the same market. We were not able to establish a means to do this.

Another problem raised by the center of commerce approach outlined above occurs with non-metro counties that border on Arbitron metros. In many cases, stations located within an Arbitron metro are also within the maximum mileage distance limits for certain COCAs. When counting the stations attributable for ownership limits, companies with stations licensed to these COCAs also own stations in the nearby Arbitron metros. If the commonly owned stations located in adjacent Arbitron metro counties are included, many existing radio groups would exceed the numerical ownership caps within the COCA. However, these Arbitron metro-based stations may focus their programming and advertising sales efforts in their more populated areas (the Arbitron metro counties) and not in the non-metro counties (the COCAs). As a result, there could be an overstatement of the presence of certain radio companies in some of these COCAs.

There is a further potential problem in the assignment procedure for COCAs concerning the stations that were assigned to a COCA because their communities of license were within the county, even though the distance from those stations to that county's center of commerce exceeded the maximum distance. Some non-metro counties are exceedingly large, and these county-based stations are located very far away from the center of commerce identified in this process.

An example of this occurs in the Otter Tail, MN COCA, as shown in Figure 10. KPRW-FM, licensed to Perham, MN, is located in the northeast portion of this county and its distance to that county's center of commerce (Fergus Falls) exceeds the maximum distance discussed above.

As shown, the city grade contour barely intersects only two of the other numerous stations in that COCA, and KPRW-FM does not appear to compete with any of the other stations in that COCA (which surround the center of commerce location). We assigned it to that COCA, nevertheless, because its city of license is in that county.

Finally, the use of uniform maximum distances to determine the number of competitive radio stations in every COCA is problematical. For FM stations, the areas actually served can be very different in different regions of the country, in part due to the local terrain. For AM stations, the thirty-mile maximum distance used for every station clearly would be inappropriate in many situations, given the great variation in AM service areas.

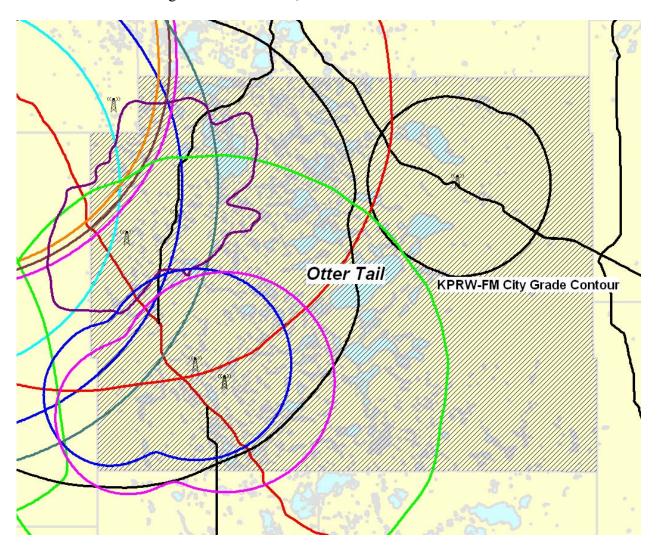


Figure 10 – Otter Tail, MN Center of Commerce Area

Arbitron County-By-County Audience Information

The final alternative we examined involved using the county-by-county audience listening information that Arbitron compiles every year with reports printed for each state. Arbitron combines the survey responses from all survey periods in a calendar year and calculates the percentage of listening by county. This report, issued annually, provides county-based audience estimates for radio stations meeting a minimum listening level in all counties located outside of Arbitron metros.²³ Given this county-specific information, a geographic market for radio may be theoretically constructed using the locations of the radio stations garnering the majority of the listening for specific counties. Counties would be combined into markets with neighboring counties dependent upon these listening patterns, similar to the method used by Nielsen Media Research in determining the geographic market delineations of their county-based Designated Market Areas (DMAs).

Unfortunately, upon careful review of the Arbitron county-by-county information, it is clear that these data are not robust enough to be utilized in this manner.²⁴ Even Arbitron itself acknowledges the limitations of these county-based audience estimates by noting that there are

Due to the very small number of correctly entered and returned diaries (referred to as intab diaries) in many non-metro counties, stations must be mentioned in only three diaries to meet the minimum listening level to be reported in this annual county-by-county report. In contrast, the minimum number for one of the quarterly or semiannual reports for metro counties is ten intab diaries.

In addition to the issues raised in this section concerning the reliability of the Arbitron county-by-county data, there are further problems in even analyzing these data. These data are part of a proprietary data analysis program making it extremely difficult to conduct independent analyses, such as those suggested here for determining relevant radio geographic markets.

no statistical reliability measures for these audience estimates. As Arbitron states on the first page of all of the county-by-county state reports,

"[A]ll audience estimates are approximations subject to the statistical variations and other limitations. The reliability of audience estimates cannot be determined to any precise mathematical value or definition. The statistical reliability of the information provided may vary from county to county."²⁵

The lack of any statistical reliability estimates for these county-based data is in sharp contrast to the precision in the audience estimates for radio stations in Arbitron metros. In those quarterly and semiannual reports, margins of errors are provided and discussed. The county-level data in the annual state reports are based on such few in-tabs diaries that the calculations are meaningless.

Another limitation with these data involves the non-reporting or combination of multiple county information made by Arbitron prior to publication. If there are no in-tab diaries from a particular county, then that county is not reported. Additionally, if there are fewer than thirty intab diaries from a county, Arbitron combines that county's listening with one or more contiguous counties that may or may not have thirty in-tab diaries. This combining of counties' listening by Arbitron for reporting purposes certainly complicates any additional combining of counties into relevant radio geographic markets if it was warranted.

²⁵ 2003 Radio County Coverage State Report, Arbitron, Inc., 2003, p. i.

Finally, much like the center of commerce approach discussed above, there are many potential problems in determining the criteria for establishing the geographic boundaries of markets using the county-based Arbitron data and identifying the stations that should be included in those markets. A rule to determine when counties should be combined into markets that consistently and accurately reflect radio service will be extremely difficult, if not impossible, to arrive at. And determining a nationwide "minimum" audience share for a station to be included in a particular market would be extremely difficult, given the vast differences in population sizes of these counties. Where a certain share in one highly populated county may be sufficient in attracting a large enough audience, it may be insufficient in another county with fewer people. Finally, given the few number of in-tab diaries in many of these counties, stations could easily be considered as part of a county one year but not the next, solely based on losing one mention in the in-tab diaries.²⁶

Conclusion

The question of determining relevant radio geographic markets is an important issue facing the Commission. Because so many stations are licensed to counties that are outside Arbitron metros, it is extremely important that any definition accurately reflects all of the choices that are available to the listening public, as well as to local advertisers.

This problem of shifting shares from one reporting period to another, referred to as "bounce," is cited in many of the Arbitron metro reports, even with the larger number of in-tab diaries included in those analyses.

Unfortunately, the two geographic area alternatives suggested by the Commission suffer from innumerable problems in accurately and consistently delineating radio markets. The failure of one of these alternatives to include all of the non-metro counties and their radio stations, and the inability of both alternatives to incorporate all of the relevant radio stations, lead to the conclusion that neither would be appropriate for this task.

Other alternatives also suffer from data limitations and methodology problems in accurately delineating radio markets and including the relevant radio stations. While both of the new approaches discussed in this report – center of commerce and Arbitron county-based audience information – appeared at first glance to be promising in delineating local radio markets, they too suffered from some of the same problems as the alternatives suggested by the Commission. Therefore, the Commission would find it best to continue using its contour overlap methodology for defining radio geographic markets areas and identifying the participating radio stations in those markets.

	Unrated Markets Geographic Definition
Appendix 1 – List of "Mixed" OMB Areas	
Tippenant Eist of Trimed Office	

	No. Of	Counties	Total Area	(sq. miles)
OMB Area	Metro	NonMetro	Metro	NonMetro
Albany, GA	2	3	685.5	1,248.5
Albuquerque, NM	3	1	5,943.5	3,345.1
Amarillo, TX	2	2	1,823.9	1,836.9
Anchorage, AK	1	1	1,697.6	24,693.7
Asheville, NC	3	1	1,659.6	373.8
Atlanta-Sandy Springs-Marietta, GA	20	8	6,126.3	2,253.0
Augusta-Richmond County, GA-SC	5	1	2,448.9	830.6
Baton Rouge, LA	4	5	1,586.6	2,443.9
Billings, MT	1	1	2,635.2	2,048.1
Birmingham-Hoover, AL	4	3	3,347.8	1,950.5
Bloomsburg-Berwick, PA	1	1	485.6	130.8
Boise City-Nampa, ID	2	3	1,644.8	10,143.5
Brunswick, GA	1	2	422.4	877.9
Cedar Rapids, IA	1	2	717.5	1,291.9
Champaign-Urbana, IL	1	2	997.2	925.9
Charleston, WV	2	3	1,249.5	1,282.9
Charlotte-Gastonia-Concord, NC-SC	5	1	2,568.3	531.6
Charlottesville, VA	4	1	1,177.1	472.4
Chattanooga, TN-GA	5	1	1,644.3	446.3
Chicago-Naperville-Joliet, IL-IN-WI	11	3	5,618.8	1,596.0
Cincinnati-Middletown, OH-KY-IN	13	2	3,809.6	589.2
Clarksburg, WV	1	2	416.1	493.3
Clarksville, TN-KY	2	2	1,260.6	901.1
College Station-Bryan, TX	1	2	585.8	1,520.2
Colorado Springs, CO	1	1	2,126.7	557.1
Columbia, MO	1	1	685.4	465.8
Columbia, SC	2	4	1,457.3	2,244.6
Columbus, GA-AL	3	2	1,106.2	830.9
Columbus, OH	7	1	3,578.8	405.5
Corpus Christi, TX	2	1	1,527.7	252.0
Dallas-Fort Worth-Arlington, TX	10	2	7,872.2	1,118.4
Davenport-Moline-Rock Island, IA-IL	3	1	1,708.0	561.0
Decatur, AL	1	1	582.2	693.4
Denver-Aurora, CO	6	4	3,760.9	4,597.1
Des Moines, IA	3	2	1,727.7	1,151.8
Detroit-Warren-Livonia, MI	5	1	3,189.9	724.5

	No. Of	Counties	Total Area	(sq. miles)
OMB Area	Metro	NonMetro	Metro	NonMetro
Durham, NC	3	1	1,373.5	392.3
Evansville, IN-KY	4	2	1,467.4	823.6
Fayetteville, NC	1	1	653.1	391.2
Fayetteville-Springdale-Rogers, AR-MO	2	2	1,793.5	1,376.5
Fort Smith, AR-OK	4	1	3,391.8	609.6
Granbury, TX	1	1	421.6	187.2
Grand Rapids-Wyoming, MI	1	3	856.2	1,971.8
Green Bay, WI	1	2	528.7	1,340.8
Greensboro-High Point, NC	2	1	1,437.6	566.5
Greenville, SC	2	1	1,289.0	713.2
Gulfport-Biloxi, MS	2	1	1,057.9	445.4
Hagerstown-Martinsburg, MD-WV	1	2	458.2	550.2
Hattiesburg, MS	2	1	964.1	647.2
Houston-Baytown-Sugar Land, TX	8	2	7,706.7	1,223.4
Indianapolis, IN	8	2	3,071.1	792.6
Jackson, MS	3	2	2,363.0	1,365.5
Jackson, TN	1	1	557.1	288.5
Jonesboro, AR	1	1	710.8	757.8
Kalamazoo-Portage, MI	1	1	561.9	611.0
Kansas City, MO-KS	10	5	4,988.0	2,869.4
Killeen-Temple-Fort Hood, TX	2	1	2,110.9	712.1
Lafayette, IN	1	2	499.8	778.6
Lake Charles, LA	1	1	1,071.2	1,313.0
Laurel, MS	1	1	693.9	676.0
Lincoln, NE	1	1	838.9	574.8
Little Rock-North Little Rock, AR	4	2	2,908.7	1,182.8
Longview, TX	1	2	274.1	1,511.3
Louisville, KY-IN	7	6	2,266.1	1,869.8
Lubbock, TX	1	1	899.6	899.6
Macon, GA	2	3	643.8	1,081.2
Memphis, TN-MS-AR	6	2	3,714.0	859.3
Meridian, MS	1	2	703.6	1,457.5
Monroe, LA	1	1	611.0	877.7
Montgomery, AL	3	1	2,007.5	718.0
Morgantown, WV	1	1	361.2	648.4
Nashville-DavidsonMurfreesboro, TN	8	5	4,073.1	1,614.1

	No. Of	Counties	Total Area	(sq. miles)
OMB Area	Metro	NonMetro	Metro	NonMetro
New Orleans-Metairie-Kenner, LA	6	1	2,308.7	844.6
New York-Newark-Edison, NY-NJ-PA	21	2	5,754.9	977.2
Ogden-Clearfield, UT	2	1	880.1	609.1
Oklahoma City, OK	5	2	3,459.6	2,059.7
Omaha-Council Bluffs, NE-IA	4	4	1,916.5	2,446.9
Orlando, FL	3	1	2,537.8	953.1
Parkersburg-Marietta, WV-OH	2	2	1,002.6	363.7
Pascagoula, MS	1	1	726.6	478.3
Peoria, IL	3	2	1,796.5	674.0
Phoenix-Mesa-Scottsdale, AZ	1	1	9,204.1	5,370.0
Pittsburgh, PA	6	1	4,623.9	654.0
Portland-South Portland, ME	2	1	1,826.6	254.0
Portland-Vancouver-Beaverton, OR-WA	5	2	4,370.9	2,313.3
Provo-Orem, UT	1	1	1,998.4	3,391.9
Reno-Sparks, NV	1	1	6,342.5	263.5
Richmond, KY	1	1	440.7	317.5
Richmond, VA	14	6	3,477.4	2,235.3
Roanoke, VA	3	3	836.3	1,036.8
St. Louis, MO-IL	12	5	6,393.0	3,000.1
Salem, OR	1	1	1,185.0	741.1
Salt Lake City, UT	2	1	7,683.3	1,871.2
San Angelo, TX	1	1	1,522.2	1,051.6
San Jose-Sunnyvale-Santa Clara, CA	1	1	1,291.2	1,389.1
Shreveport-Bossier City, LA	2	1	1,720.6	877.3
Sioux City, IA-NE-SD	2	2	1,136.7	936.8
South Bend-Mishawaka, IN-MI	1	1	457.3	492.2
Springfield, MA	2	1	1,147.5	702.1
Springfield, MO	3	2	1,831.6	1,178.8
Tallahassee, FL	2	2	1,273.5	1,114.0
Toledo, OH	3	1	1,364.6	255.1
Tulsa, OK	5	2	5,015.0	1,266.5
Tuscaloosa, AL	1	2	1,325.3	1,289.8
Virginia Beach-Norfolk-Newport News, VA-NC	13	3	1,947.0	680.7
Washington-Arlington-Alexandria, DC-VA-MD-WV	20	2	4,768.4	859.9
Waterloo-Cedar Falls, IA	2	1	1,005.3	502.6

	No. Of Counties		Total Area (sq. miles)		
OMB Area	Metro	NonMetro	Metro	NonMetro	
Wichita, KS	3	1	2,967.8	1,181.9	
Wichita Falls, TX	2	1	1,537.5	1,097.9	
Wilmington, NC	2	1	1,053.8	870.7	
Winchester, VA-WV	2	1	423.9	641.8	
Youngstown-Warren-Boardman, OH-PA	2	1	1,031.1	671.9	

	Unrated Markets Geographic Definition
Appendix 2 – List of "Mixed" Cellular Mark	xet Areas
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BIA Financial Network	38

CMA Nama	No. Of Counties		Total Area (sq. miles)		
CMA Name	Metro	Non Metro	Metro	Non Metro	
Alabama-1	2	5	1,227.9	3,423.6	
Alabama-7	2	4	1,255.6	3092.3	
Alabama-8	1	4	562	2729.5	
Arkansas-4	2	3	1,609.1	1974.7	
Atlanta, GA	14	1	4,131.7	186.6	
Battle Creek, MI	1	1	708.9	556.2	
Biloxi-Gulfport, MS	2	1	1,057.9	445.4	
Binghamton, NY	2	1	1,225.6	823	
California-10	1	1	957.7	953.4	
California-3	1	4	1,451.2	4587.2	
California-4	1	2	1,928.9	3527.5	
Colorado Springs, CO	1	1	2,126.7	557.1	
Colorado-3	1	8	3,327.9	13231.6	
Delaware-1	1	1	937.7	590.7	
Denver-Boulder, CO	6	1	4,503.4	149.9	
Evansville, IN-KY	4	1	1,467.4	488.9	
Flint, Ml	1	1	639.7	538.8	
Florida-1	1	1	2,025.5	1152.7	
Florida-2	2	2	1,531.7	1547.8	
Florida-4	1	3	478.3	2082.4	
Florida-5	1	1	485	722.2	
Florida-6	2	1	1,467.3	704.1	
Gainesville, FL	1	1	874.3	293.2	
Georgia-1	1	7	232.1	2291.3	
Georgia-12	1	5	422.4	2628.2	
Georgia-2	1	9	162.2	2456.4	
Georgia-3	1	3	459.9	1138.3	
Georgia-5	2	3	942.4	992.2	
Georgia-6	1	9	198	3187.4	
Huntsville, AL	2	1	1,373.1	567.1	
Idaho-1	1	8	1,245.2	11282.9	
Idaho-4	1	2	589.8	10756.2	
Illinois-1	1	6	601.2	3811.8	
Illinois-7	2	6	1,125.1	3108.3	
Illinois-8	3	9	1,424.4	3591.8	
Indiana-3	1	3	382.6	962.8	

CMA Name	No. Of Counties		Total Area (sq. miles)		
CWIA Name	Metro	Non Metro	Metro	Non Metro	
Indiana-8	1	7	485.3	2897.2	
Indiana-9	2	5	277.1	1778.9	
Iowa-10	1	5	572.9	2878.7	
Iowa-13	2	3	969.6	1558.5	
Iowa-14	2	4	968.4	2527.2	
Kalamazoo, Ml	1	1	561.9	611	
Kansas-10	1	7	576.8	4026.9	
Kansas-14	1	5	539.4	5227.9	
Kansas-5	2	3	1,120.2	1395.3	
Kansas-9	1	4	797.5	3464.1	
Kentucky-3	3	11	1,193.9	4492.6	
Kentucky-5	3	7	1,197.9	2381.6	
Kentucky-6	1	7	440.7	2609.8	
Kentucky-7	4	6	1,022.9	1440.7	
Lansing-East Lansing, Ml	3	1	1,707.2	573.2	
Lima, OH	2	2	805.8	894	
Longview-Marshall, TX	1	1	274.1	898.8	
Louisiana-5	4	6	3,590.4	5111.9	
Louisiana-6	1	3	575.2	1570.3	
Louisiana-8	2	1	502.6	246.1	
Macon-Warner-Robins, GA	4	1	1,171.7	360.4	
Maine-3	2	2	1,597.3	821.2	
Maryland-2	5	5	1,765.0	1787.7	
Massachusetts-2	1	2	395.8	151.6	
Michigan-5	2	6	669.8	3305.1	
Minnesota-10	1	6	752.4	3220.4	
Minnesota-11	2	5	964.5	3516.1	
Minnesota-6	1	9	439.1	10252	
Minnesota-7	1	6	452.3	4051.2	
Minnesota-9	1	8	610.9	4854.3	
Mississippi-1	1	6	706.4	3133.9	
Mississippi-10	1	5	693.9	3227.4	
Mississippi-11	2	4	964.1	2649.9	
Mississippi-2	5	4	2,310.0	1688.9	
Mississippi-4	3	3	1,674.4	1475.7	
Mississippi-6	2	6	960.1	3286	

CMA Name No. Of Counties		Counties	Total Area	(sq. miles)
CIVIA Name	Metro	Non Metro	Metro	Non Metro
Mississippi-7	1	5	703.6	3106.2
Missouri-16	1	3	593.4	2626.8
Missouri-7	1	5	629.4	3302.1
Missouri-8	2	2	1,062.2	1377.8
Muskegon, Ml	1	1	509.2	540.5
Nebraska-5	1	9	390.5	5015.2
Nevada-3	1	3	143.5	2967.2
New Hampshire-2	1	2	934.5	1335.2
New Mexico-3	1	3	1,067.6	17755.9
New Mexico-4	2	7	2,018.8	20148.1
New York-1	1	2	1,272.3	3961.3
New York-2	2	3	2,836.4	3848.5
New York-3	2	4	1,886.8	3995.3
New York-4	1	6	476.1	3079.2
New York-5	1	4	621.8	4545.7
North Carolina-10	1	2	792.0	1147.6
North Carolina-11	1	3	948.9	2203
North Carolina-14	6	1	3,211.4	462.6
North Carolina-15	3	2	1,141.0	969.5
North Carolina-4	1	5	298.8	2081.8
North Carolina-6	1	2	683.1	956.1
North Carolina-7	1	6	491.6	2598
North Carolina-9	4	3	887.4	1393.5
Ohio-4	1	4	436.7	1931
Ohio-6	1	6	686.5	2899.6
Ohio-8	1	4	491.8	1954.8
Oklahoma-3	1	6	744.6	4865.9
Oregon-1	1	3	715.6	2586.3
Parkersburg-Marietta, WV-OH	2	1	1,002.6	233
Pennsylvania-1	2	2	1,688.0	1311.6
Pennsylvania-10	1	2	772.0	1452.2
Pennsylvania-4	1	2	397.2	1600.7
Pennsylvania-6	1	3	788.6	1617
Pennsylvania-8	1	5	485.6	2017.3
Pennsylvania-9	1	1	790.1	575.9
Portland, ME	1	1	835.6	254

CMA Name	No. Of C	Counties	Total Area (sq. miles)	
CIVIA Name	Metro	Non Metro	Metro	Non Metro
Roanoke, VA	4	1	850.9	330.1
Salem, OR	1	1	1,185.0	741.1
South Bend-Mishawaka, IN	1	1	457.3	444.3
South Carolina-2	1	6	501.9	3118.5
South Carolina-4	1	4	562.1	2409.7
South Carolina-5	2	1	1,948.6	489.1
South Carolina-9	1	1	682.6	549
Springfield, OH	1	1	400.0	428.6
Tallahassee, FL	2	1	1,273.5	516.2
Tennessee-3	3	12	1,143.3	4552.5
Tennessee-4	1	5	592.3	1771.4
Tennessee-5	2	12	1,261.6	6142.2
Tennessee-7	1	7	228.6	2746.5
Texarkana, TX-AR	2	1	1512	531.8
Texas-11	1	7	1,052.3	5285.4
Texas-15	1	12	662.5	11801.4
Texas-16	2	11	1,434.3	9541.5
Texas-18	2	10	2,119.7	15442.6
Texas-19	1	11	1,232.2	12031.2
Texas-20	1	7	807.2	4928.1
Texas-5	1	10	909.8	8644.7
Toledo, OH-MI	4	1	1,915.7	255.1
Vermont-1	1	6	637.1	3852.1
Vermont-2	1	4	770.0	3368.6
Virginia-10	5	3	1,326.4	1228
Virginia-11	3	4	753.1	1470.2
Virginia-12	2	11	712.6	2473.7
Virginia-2	1	5	519.8	1724.9
Virginia-3	5	2	1,458.0	959.7
Virginia-4	2	3	761.6	1085.5
Virginia-6	2	5	868.8	1893.8
Washington-1	1	4	208.6	5464.2
West Virginia-3	3	3	1,087.0	1162
West Virginia-7	2	4	1,027.5	2519.9
Wichita Falls, TX	1	1	627.7	1097.9
Wisconsin-5	1	3	576.5	1768.9

CMA Name	No. Of Counties		Total Area (sq. miles)	
	Metro	Non Metro	Metro	Non Metro
Wisconsin-7	2	6	1,599.3	3602.5
Wisconsin-8	2	6	1,910.6	4009.4
Wisconsin-9	1	4	773.9	2717.9
Wyoming-4	1	4	2,686.2	11210.3